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INSPECTION REPORT

APPLICABLE DOC. REF.

PROC. REF.

AMS02-PDS PFM Manufacturing and Inspection Plan PDS-PL-CGS-001 N.A.

is. 1

ITEM INSPECTED (Name, P/N, S/N) AMSO2-PDS PFM Boards - Visual inspection of Esem 1-A Board Assy p/n:11-AMS02PDS-600.00 s/n:01, Can Bus I/F Board Assy p/n:11-AMS02PDS-500.00 s/n:01 and Can Bus I/F Board Assy p/n:11-AMS02PDS-500.00 s/n:02 - MIP.

REQUIREMENT SATISFIED

Manufacturing according to aerospace standards

INSPECTION (Action/Results)

DESCRIPTION

Inspection was performed at Carlo Gavazzi Space premises starting on 14 May 2009 and was carried out on the following boards, detail of the inspected boards were below reported:

- 1) Esem 1-A Board Assy p/n:11-AMS02PDS-600.00 s/n:01(pcb s/n:2639.2) comprised Esem 1-A Piggy Back Assy p/n:11-AMS02PDS-610.00 s/n:07-032/A.
- 2) Can Bus I/F Board Assy p/n:11-AMS02PDS-500.00 s/n:01(pcb s/n:A1-1A).
- Can Bus I/F Board Assy p/n:11-AMS02PDS-500.00 s/n:02(pcb s/n:A1-1B).

HARDWARE REVIEW

1) Esem 1-A Board Assy p/n:11-AMS02PDS-600.00 s/n:01(pcb s/n:2639.2) comprised Esem 1-A Piggy Back Assy p/n:11-AMS02PDS-610.00 s/n:07-032/A.

The following PLVSs (Parts List Variation Sheet) were presented during the inspection:

- 11-AMS02PDS-600.01 rev A A1 can be considered closed.
- 11-AMS02PDS-600.01 rev A A2 can be considered closed.
- 11-AMS02PDS-600.01 rev A A3 can be considered closed.
- 11-AMS02PDS-600.01 rev A A4 can be considered closed.
- 11-AMS02PDS-600.01 rev A A5 can be considered closed.
- 11-AMS02PDS-600.01 rev A A6 can be considered closed.
- 11-AMS02PDS-600.01 rev A A7 can be considered closed.
- 11-AMS02PDS-600.01 rev A A9 can be considered closed.
- 11-AMS02PDS-610.01 rev A A1 can be considered closed. 11-AMS02PDS-610.01 rev A - A2 can be considered closed.
- 11-AMS02PDS-610.01 rev A A3 can be considered closed.
- 11-AMS02PDS-610.01 rev A A4 can be considered closed.
- 11-AMS02PDS-610.01 rev A A5 can be considered closed.
- 11-AMS02PDS-610.01 rev A A6 can be considered closed.

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- 11-AMS02PDS-610.01 rev A A7 can be considered closed.
- 11-AMS02PDS-610.01 rev A A8 can be considered closed.
- 11-AMS02PDS-610.01 rev A A9 can be considered closed.
- 11-AMS02PDS-610.01 rev A A10 can be considered closed.
- 11-AMS02PDS-610.01 rev A A11 can be considered closed.
- 11-AMS02PDS-610.01 rev A A12 can be considered closed.
- 11-AMS02PDS-610.01 rev A A13 can be considered closed.
- 11-AMS02PDS-610.01 rev A A14 can be considered closed.
- 11-AMS02PDS-610.01 rev A A15 can be considered closed.
- 11-AMS02PDS-610.01 rev A A16 can be considered closed.
- 11-AMS02PDS-610.01 rev A A17 can be considered closed.
- 11-AMS02PDS-610.01 rev A A22 can be considered closed.
- 11-AMS02PDS-610.01 rev A A23 can be considered closed.
- 11-AMS02PDS-610.01 rev A A26 can be considered closed.

The following NCRs were presented during the inspection:

- NCR-PDS-CGS-C-001(electronic components assembly problems), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-023(over voltage protection missing), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-024(electrical problem on Esem 1-A power cells controllers), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added two capacitors with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-037(assembly of inductances not clear), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-058(output voltage wrong value), NCR classified "minor" is closed.

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INSPECTION (Action/Results)

- NCR-PDS-CGS-C-073(short circuit between "sec_pwr_line" signal and mechanical upper frame),
 NCR classified "minor" is closed.
- NCR-PDS-CGS-C-068(over voltage protection missing connection), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-083(pull down for signal I/F), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-099(ESEM 1-A Piggy Strobe signal shape problem), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: apply conformal coating on R33, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-119(ESEM 1-A Piggy telemetries MUX malfunction), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: apply conformal coating on U8, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-121(ESEM 1-A Piggy MUX power supply malfunction), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: apply conformal coating on rework area, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-123(ESEM 1-A over voltage protection trimming), NCR classified "minor" is still
 open during the inspection activity, the following corrective actions will be performed: glue the
 added two capacitors with adhesive EC 2216 B/A, perform a visual inspection of the previous
 rework.
- NCR-PDS-CGS-C-135(driver transformer change), NCR classified "minor" is still open during the
 inspection activity, the following corrective actions will be performed: glue the added two
 transformers with adhesive EC 2216 B/A, perform a visual inspection of the previous.
- NCR-PDS-CGS-C-136(magnetic components criticality), NCR classified "major" is still open during the inspection activity, corrective actions are in course.

The boards have been visually inspected and are ok: no damage, visible clean is ok.

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11) Can Bus I/F Board Assy p/n:11-AMS02PDS-500.00 s/n:01(pcb	s/n:A1-1A).
The following PLVSs (Parts List Variation Sheet) were presented du	ring the inspection:
 11-AMS02PDS-500.01 rev / – A1 can be considered closed 	l.
 11-AMS02PDS-500.01 rev / – A2 can be considered closed 	I.
 11-AMS02PDS-500.01 rev / – A3 can be considered closed 	I.
 11-AMS02PDS-500.01 rev / – A4 can be considered closed 	I.
 11-AMS02PDS-500.01 rev / – A5 can be considered closed 	L
 11-AMS02PDS-500.01 rev / – A6 can be considered closed 	I.
 11-AMS02PDS-500.01 rev / – A7 can be considered closed 	I.
 11-AMS02PDS-500.01 rev / – A8 can be considered closed 	I.
 11-AMS02PDS-500.01 rev / – A9 can be considered closed 	I.
 11-AMS02PDS-500.01 rev / – A10 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A12 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A13 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A14 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A15 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A16 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A17 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A18 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A19 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A22 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A23 can be considered close 	ed.
 11-AMS02PDS-500.01 rev / – A25 can be considered close 	ed.
Operator Quality Ass	urance C.C.
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INSPECTION (Action/Results)

The following NCRs were presented during the inspection:

- NCR-PDS-CGS-C-036(output clock line driver enable control problem), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added wire with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-051(OVC protection improvement), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added components and wires with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-052(C197 footprint wrong on pcb), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the component with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-062(invalid input range on AN_DATA3 telemetry input), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-120(SW failure during first request command), NCR classified "major" is closed
- NCR-PDS-CGS-C-128(CPU_RST command), NCR classified "major" is closed.
- NCR-PDS-CGS-C-129(unwanted switch off), NCR classified "major" is closed.
- NCR-PDS-CGS-C-132(input current telemetry problems), NCR classified "major" is closed.
- NCR-PDS-CGS-C-127(interface on/off command problem at cold temperature), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-125(error in input current telemetry), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-131(input voltage telemetry), NCR classified "major" is closed.
- NCR-PDS-CGS-C-136(magnetic components criticality), NCR classified "major" is still open during the inspection activity, corrective actions are in course.

The components U6 and U7 (EPROM) must be still mounted.

The board has been visually inspected and is ok: no damage, visible clean is ok.

	Operator	Quality Assurance	C.C.
Signature		pure ca	Enjola.
Date		14/05/09 C.G.S.	14.03.09



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INSPECTION (Action/Results)

12) Can Bus I/F Board Assy p/n:11-AMS02PDS-500.00 s/n:02(pcb s/n:A1-1B).

The following PLVSs (Parts List Variation Sheet) were presented during the inspection:

- 11-AMS02PDS-500.01 rev / A1 can be considered closed.
- 11-AMS02PDS-500.01 rev / A2 can be considered closed.
- 11-AMS02PDS-500.01 rev / A3 can be considered closed.
- 11-AMS02PDS-500.01 rev / A4 can be considered closed.
- 11-AMS02PDS-500.01 rev / A5 can be considered closed.
- 11-AMS02PDS-500.01 rev / A6 can be considered closed.
- 11-AMS02PDS-500.01 rev / A7 can be considered closed.
- 11-AMS02PDS-500.01 rev / A8 can be considered closed.
- 11-AMS02PDS-500.01 rev / A9 can be considered closed.
- 11-AMS02PDS-500.01 rev / A11 can be considered closed.
- 11-AMS02PDS-500.01 rev / A12 can be considered closed.
- 11-AMS02PDS-500.01 rev / A13 can be considered closed.
- 11-AMS02PDS-500.01 rev / A14 can be considered closed.
- 11-AMS02PDS-500.01 rev / A20 can be considered closed.

11-AMS02PDS-500.01 rev / - A21 can be considered closed.

- 11-AMS02PDS-500.01 rev / A24 can be considered closed.
- 11-AMS02PDS-500.01 rev / A25 can be considered closed.
- 11-AMS02PDS-500.01 rev / A26 can be considered closed.

The following NCR were presented during the inspection:

 NCR-PDS-CGS-C-036(output clock line driver enable control problem), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added wire with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.

	Operator	Quality Assurance	C.C.
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- NCR-PDS-CGS-C-051(OVC protection improvement), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added components and wires with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-052(C197 footprint wrong on pcb), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the component with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- NCR-PDS-CGS-C-120(SW failure during first request command), NCR classified "major" is closed.
- NCR-PDS-CGS-C-125(error in input current telemetry), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-127(interface on/off command problem at cold temperature), NCR classified "minor" is closed.
- NCR-PDS-CGS-C-128(CPU RST command), NCR classified "major" is closed.
- NCR-PDS-CGS-C-129(unwanted switch off), NCR classified "major" is closed.
- NCR-PDS-CGS-C-131(input voltage telemetry), NCR classified "major" is closed.
- NCR-PDS-CGS-C-132(input current telemetry problems), NCR classified "major" is closed.
- NCR-PDS-CGS-C-136(magnetic components criticality), NCR classified "major" is still open during the inspection activity, corrective actions are in course.

The components U6 and U7 (EPROM) must be still mounted

The board has been visually inspected and is ok: no damage, visible clean is ok.

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Date		14/05/09 2/1	14.05.03



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INSPECTION (Action/Results)

CONCLUSION

As it can be evinced by the results of the visual inspection reported on previous section (HARDWARE REVIEW), no discrepancies able to impact the next foreseen activities, have been highlighted.

All solder joints are of adequate quality, the soldering process complies to ECSS-Q-70-08A and ECSS-Q-70-38A, all modifications are performed according to ECSS-Q-70-28A.

The open points are here listed:

- 1) NCR-PDS-CGS-C-024(electrical problem on Esem 1-A power cells controllers), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added two capacitors with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- 2) NCR-PDS-CGS-C-099(ESEM 1-A Piggy Strobe signal shape problem), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: apply conformal coating on R33, perform a visual inspection of the previous rework..
- 3) NCR-PDS-CGS-C-119(ESEM 1-A Piggy telemetries MUX malfunction), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: apply conformal coating on U8, perform a visual inspection of the previous rework.
- 4) NCR-PDS-CGS-C-121(ESEM 1-A Piggy MUX power supply malfunction), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: apply conformal coating on rework area, perform a visual inspection of the previous rework.
- 5) NCR-PDS-CGS-C-123(ESEM 1-A over voltage protection trimming), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added two capacitors with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.
- 6) NCR-PDS-CGS-C-135(driver transformer change), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added two transformers with adhesive EC 2216 B/A, perform a visual inspection of the previous.
- 7) NCR-PDS-CGS-C-136(magnetic components criticality), NCR classified "major" is still open during the inspection activity, corrective actions are in course.
- 8) NCR-PDS-CGS-C-036(output clock line driver enable control problem), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added wire with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.

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9) NCR-PDS-CGS-C-051(OVC protection improvement), NCR classified "minor" is still open during the inspection activity, the following corrective actions will be performed: glue the added components and wires with adhesive EC 2216 B/A, perform a visual inspection of the previous rework. 10) NCR-PDS-CGS-C-052(C197 footprint wrong on pcb), NCR classified "minor" is still open during the				
inspection activity, the following corrective actions will be performed: glue the component with adhesive EC 2216 B/A, perform a visual inspection of the previous rework.				
11)On Can Bus I/F Boards s/n:01 and 02 the components U6 and U7 (EPROM) must be still mounted.				
From the H/W point of view the inspected boards can be used to proceed with the next activities: - Closing of NCR-PDS-CGS-C-024, NCR-PDS-CGS-C-036, NCR-PDS-CGS-C-051, NCR-PDS-CGS-C-052, NCR-PDS-CGS-C-099, NCR-PDS-CGS-C-119, NCR-PDS-CGS-C-121, NCR-PDS-CGS-C-123, NCR-PDS-CGS-C-135 and NCR-PDS-CGS-C-136. - Mount on Can Bus I/F Boards s/n:01 and 02 the components U6 and U7 (EPROM).				
- Gluing of some components and threaded hardware parts.				
- Conformal coating.				
Operator Quality Assurance				
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